

CLAIMS

What is claimed is:

1. A fire-blocking door lock structure, comprising:

a latching member mounted in a lock casing on a fire-blocking door; and

- 5 an actuation mechanism mounted in the latching member, the actuation mechanism comprising a latch body which swings smoothly and is formed with a stop portion; a stop piece which prevents retraction of the latch body and is connected to a fire-blocking piece; a safety latching member which prevents the latch body from retraction into the latching member when the safety latching member abuts against the stop piece; a guide rod for allowing the latch body to be blocked by the fire-blocking piece when the safety latching member abuts against the stop piece; and an actuating piece for guiding the latch body and the guide rod in motion by a force, to allow the latch body to be retracted into the latching member to open the fire-blocking door when the stop piece fails to block the stop portion, and allow the stop piece to block by the stop portion when the fire-blocking piece melts under a high temperature, so as to prevent the latch body from retraction into the latching member and assure lockup of the fire-blocking door.

2. The fire-blocking door lock structure of claim 1, wherein the stop piece is pivoted to the latching member by a pin penetrating the latching member.

- 20 3. The fire-blocking door lock structure of claim 1, wherein the latching member has its bottom mounted on a plate member.

4. The fire-blocking door lock structure of claim 1, wherein the latching member is formed with an upright oval-shaped aperture where the guide rod is pivoted.

5. The fire-blocking door lock structure of claim 1, wherein the stop portion is formed on a rear side of the latch body.

- 25 6. The fire-blocking door lock structure of claim 5, wherein the rear side of the latch body is further formed with a recess portion.

7. The fire-blocking door lock structure of claim 6, wherein the actuating piece has one

end forming a driving portion and the other end forming a passive portion, to allow the latch body to be retracted into the latching member by pressure from the passive portion of the actuating piece.

8. The fire-blocking door lock structure of claim 7, wherein the driving portion is extended into and engaged with the recess portion of the latch body.

9. The fire-blocking door lock structure of claim 7, wherein the actuating piece is formed on its central top with a first pivot stand that is pivoted to the latching member by a pin penetrating the first pivot stand.

10. The fire-blocking door lock structure of claim 9, wherein a second pivot stand is formed on the top the passive portion, such that the guide rod penetrates the second pivot stand to be movably installed in the latching member.

11. The fire-blocking door lock structure of claim 10, wherein the second pivot stand is formed with a lateral oval-shaped aperture where the guide rod is inserted.

12. The fire-blocking door lock structure of claim 1, wherein a boss penetrates the bottom of the safety latching member and a slot formed on a side wall of the latching member, to allow the safety latching member to be retracted into the latching member.

13. The fire-blocking door lock structure of claim 12, wherein the boss is formed with a stop bolt penetrating the safety latching member.

14. The fire-blocking door lock structure of claim 13, wherein the stop piece has one side formed with a first end and the other side formed with a second end, allowing the first end to abut against the stop bolt of the boss to maintain the safety latching member at a bias position to move downwards, and the second end is coupled to one end of an elastomer, with the other end of the elastomer being coupled to the top of the latching member, making the stop portion move upwards by elastic extension of the elastomer.

15. The fire-blocking door lock structure of claim 14, wherein the stop piece has an upright portion formed on the second end thereof, allowing the fire-blocking piece to

be coupled to an upright side wall of the upright portion.

16. The fire-blocking door lock structure of claim 1, wherein a front end of the stop piece abuts against the stop portion of the latch body to allow the latch body to be pivoted to the latching member.

5 17. The fire-blocking door lock structure of claim 1, wherein the fire-blocking piece is a flat plate structure.

18. The fire-blocking door lock structure of claim 1, wherein the fire-blocking piece is made of a material melting at the high temperature.

10 19. The fire-blocking door lock structure of claim 7, wherein the guide rod abuts against the fire-blocking piece and moves towards the latch body, to allow the fire-blocking piece to move downwards, making the stop piece fail to block the stop portion of the latch body, such that the latch body is urged upwards by the passive portion of the actuating piece and retracted into the latching member, so as to release lockup of the lock structure and open the fire-blocking door.

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